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1805

RESPONSE UNDER 37 C.F.R. § 1.116
EXPEDITED PROCEDURE
ART UNIT 1805

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



#38
B.J.
9/4/96

Applicant: Paul R. Schimmel

Serial No.: 08/249,689 Group Art Unit: 1805

Filed: May 26, 1994 Examiner: John Brusca

For: DESIGNING COMPOUNDS SPECIFICALLY INHIBITING RIBONUCLEIC ACID FUNCTION

Box AF
Assistant Commissioner for Patents
Washington, D.C. 20231

**RESPONSE TO OFFICE ACTION**
**UNDER 37 C.F.R. § 1.116**

Sir:

Responsive to the Office Action mailed on April 17, 1996, and the Advisory Action mailed July 30, 1996, please consider the following comments. Submitted with this Response to Office Action are a Petition for Extension of Time and a Notice of Appeal, each with a request that the required fee be charged to Deposit Order Account No. 01-2507.

In the Advisory Action mailed July 30, 1996, the Examiner maintained the rejection under 35 U.S.C. § 112, first paragraph. Applicant respectfully traverses this rejection.

1. In the Advisory Action, the Examiner states that Wilson *et al.* was "cited to show that three years after the priority date of the instant application, one of ordinary skill in the art would not know how to practice the claimed invention in the absence of additional guidance from the instant application." The Examiner goes on to note that Applicant has failed to point to any prior art that contests the teachings of Wilson *et al.* Applicant does not doubt that Wilson *et al.* was cited for the reason stated by the Examiner. However, Wilson *et al.* does not, in fact, support the Examiner's statement. Initially, Applicant notes that Wilson *et al.* does not indicate in any way that "one of ordinary skill in the art would not know how to practice the claimed invention in the absence of additional guidance from the instant application", nor has the Examiner previously contended that it did. It appears that the Examiner intended to allege that Wilson *et al.* provides evidence that one of ordinary skill in the art would not know how to practice the claimed invention in the absence of additional guidance from the instant application. Unfortunately, Wilson *et al.* does not, in fact, show this. The reasons why Wilson *et al.* fails in this regard have been previously discussed and have not been rebutted by the Examiner.

Wilson *et al.* describe *initial* efforts, apparently started years after the present invention was made, to identify compounds that interact specifically with RNA. In addition, Wilson *et al.* describes not efforts to *design* such compounds, but a screening of compounds with known interactions with *DNA*. The probative value of the comment by Wilson *et al.* that no classes of small molecules have been defined that bind strongly to the minor groove

of RNA has not been established insofar as Wilson *et al.* does not characterize any attempts to design such molecules. Wilson *et al.* does not describe any attempts, nor is there any suggestion, to screen compounds either at random or based on any criteria other than known binding to DNA. Wilson *et al.* also does not describe attempts by others to either design or screen compounds which bind to RNA. Thus, it is clear that although Wilson *et al.* falls within the generic concept of attempts to *discover* RNA binding compounds, Wilson *et al.* does not involve any attempt to *design* such compounds. Accordingly, Wilson *et al.* does not characterize any attempts to *design* RNA binding compounds. With respect, this fact goes to the weight of any alleged absence of RNA binding compounds. Specifically, it is much less prejudicial to enablement if few if any attempts had been made to practice this aspect of the claimed method (as appears to be the case), than if numerous attempts at such *design* had ended in failure (for which their is no evidence on the record). In this regard, Applicant notes that the record indicates that Wilson *et al.* was cited as alleged evidence that molecules binding the minor groove of RNA had not been designed even three years after the priority date of the present application. While such an indication, if present in Wilson *et al.*, would be a factor to be used in determining enablement, it is at best a secondary factor. Such an indication, even if clearly made by Wilson *et al.*, would hardly justify the sweeping *conclusion* now attributed to Wilson *et al.* by the Examiner.

Similarly, the probative value of the comment by Wilson *et al.* that there are no outstanding paradigms to suggest design directions for RNA groove-binding drugs is in

serious doubt because the present application, unknown to Wilson *et al.*, describes such a paradigm. Furthermore, this belief expressed in Wilson *et al.* that no such paradigm exists indicates that Wilson *et al.* was unaware of any systematic effort to *design* compounds that interact with RNA molecules based on any paradigm such as the one conceived by Applicant. Thus, the alleged failure to produce such compounds contained in Wilson *et al.* carries little weight regarding any alleged difficultly in practice of the present invention. Applicant asserts that the Examiner has failed to rebut this analysis of Wilson *et al.*

2. The Advisory Action also asserts that, since the "only disclosed utility for the claimed invention is for the therapeutic use of the claimed products, the specification must enable therapeutic use of a product of the claimed methods and therapeutic use of the claimed products." It appears that the Examiner contends that Applicant has failed to adequately teach how to use the claimed invention. Applicant submits that the objective truth of the statements in the specification regarding use of the claimed compounds are to be accepted unless evidence or convincing reasoning can be provided by the Patent Office. The fact that the claimed compounds have not yet been demonstrated to be therapeutically efficacious is not evidence that such use is unpredictable, that such use can not be established without the need for undue experimentation, or that those of skill in the art would doubt that the claimed

compounds can be used *in vivo*. In this regard, Applicant notes that there is no requirement that the claimed method be actually demonstrated.[1]

Notwithstanding the above, Applicant asserts that sufficient disclosure is provided to allow those of skill in the art to use the claimed compounds therapeutically. Even so, Applicant asserts that this is not required for the specification to be meet the requirement of 35 U.S.C. § 112, first paragraph. In this regard it is important to note that the claims are directed to compounds, or a method of making such compounds, *per se*. It is axiomatic that only that which is actually claimed need be enabled.[2] Thus, for the specification to teach how to make and use the claimed invention, all that is required is sufficient disclosure to allow those of skill in the art to make compounds (using the claimed method) that bind to the minor groove and inhibit function of the targeted RNA in any setting. No therapeutic effect is required. In this regard, Applicant directs attention to *In re Gardner*, 475 F.2d 1389, 1392 (CCPA 1973), *reh'g denied*, 480 F.2d 879 (CCPA 1973), where the court emphasized that the subject matter within a broad claim need not be shown to have the same degree of

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[1]See *Gould v. Quigg*, 822 F.2d 1074, 1078, 3 USPQ2d 1302, 1304 (Fed. Cir. 1987) (the mere fact that something has not previously been done is not, in itself, a sufficient basis for rejecting all applications purporting to disclose how to do it).

[2]see *Christianson v. Colt Industries Operating Corp.*, 822 F.2d 1544, 1565, 1 USPQ2d 1241, 1255 (Fed. Cir. 1987), *vacated, and remanded with instructions to transfer appeal to Court of Appeals for the Seventh Circuit*, 108 S. Ct. 2166, 7 USPQ2d 1109 (1988), *on remand*, 870 F.2d 1292, 1299, 10 USPQ2d 1352, 1357 (7th Cir. 1989) ("Because only the claimed invention receives patent law protection, the disclosures need generally be no greater than the claim.")("The 'invention' referred to in the enablement requirement of section 112 is the *claimed* invention").

utility; it is sufficient if the specification adequately discloses some use for all of the subject matter.[3]

Applicant submits that any indication that the compounds can be used *in vivo* is not germane to the question of whether use of a composition of matter (which can, in fact, be used other than *in vivo*) is enabled, since the claims are not limited to this use. The claims do not limit the use of the claimed compound in any way. Applicant agrees that the claimed compounds *can* be used *in vivo*, but submit that they can also be used in other settings, such as *in vitro*. As discussed above, Applicant is only required to enable a single use for the claimed composition. Applicant asserts that all of the claimed compounds can be used at least *in vitro* and so the specification does teach how to use each of the claimed compounds.

Furthermore, Applicant asserts that even for the therapeutic uses at issue, Applicant is not required to support or demonstrate some arbitrary level of use or effectiveness. All that is required is that the invention work to some extent and that this minimal level of use is enabled. For example, it is not required that the claimed compounds cure any disease, prolong life, or even inhibit the function of a target RNA for some specific period of time.

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[3]See also *Envirotech Corp. v. Al George, Inc.*, 730 F.2d 753, 762 (Fed. Cir. 1984) ("the fact that an invention has only limited utility and is only operable in certain applications is not grounds for finding lack of utility."); *Ex parte Hozumi*, 3 USPQ2d 1059, 1060-61 (Bd. Pat. App. & Int'f 1987) (as to examiner's Section 112 rejection "based on an asserted lack of enablement with respect to the utilization of the entire genus disclosed in the antitumor utility disclosed": "it is not necessary that all of the compounds claimed be useful for every utility disclosed in an application"); *Ex parte Cole*, 223 USPQ 94, 95 (PTO Bd. App. 1983) ("We know of no statutory or case law requiring each and every compound within a claim to be equally useful for each and every contemplated application.").

All that is required is that the claimed compounds, at a minimum, bind to the minor groove and inhibit the function of a single RNA molecule in any setting. Applicant asserts that the claimed compounds will accomplish this. Again, Applicant asserts that all of the claimed compounds can be used at least *in vitro* and so the specification does teach how to use each of the claimed compounds. Contrary to the assertion of the rejection, the "use" of the claimed compounds enabled by the specification need not be a commercially viable therapeutic or even a therapeutically efficacious treatment.[4] Applicant is not required to demonstrate a safe and effective therapeutic, especially when the claims do not require such a capability.

3. The Advisory Action notes that the specification fails to describe or cite prior art describing design of compounds that bind to the minor groove of RNA, and that the record does not indicate that this aspect of the invention has been reduced to practice. Applicant again notes that the is no requirement that the invention be actually demonstrated or actually reduced to practice (see footnote 1). Although Applicant is aware that whether or not the invention has been actually demonstrated is a *factor* to be considered in determining whether

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[4]see *In re Langer*, 183 USPQ 288, 298 (CCPA 1974) (full scale clinical trials in humans...may be necessary to establish 'commercial usefulness' in this technology. However, development of a product to the extent that it is commercially salable in the marketplace is not required to establish 'usefulness'); see also *Ex parte Maas*, 14 USPQ2d 1762, 9 USPQ2d 1746, 1747 (Bd. Pat. App. & Int'f 1987) (appeal presents "only one issue...whether [applicants] have provided substantiating evidence...to establish that the subject matter defined [in the claims] possesses a practical utility"; "the issue under 35 USC 112 relating to an enabling disclosure is subsumed within the issue under 35 USC 101 relating to patentable utility"); *In re Hafner*, 410 F.2d 1403, 1405, 161 USPQ 783, 785 (CCPA 1969) ("The disclosure of how to use must relate to a use of the kind considered by the Supreme Court in Brenner v. Manson to be a sufficient utility.").

an invention is enabled, it is not alone dispositive of enablement, nor is it the cornerstone of any *rule* of enablement. Applicant believes that this factor has been applied as indicating lack of enablement *per se*. The evidence of this is that no analysis has been presented setting forth why a lack of demonstration of this step of the invention leads to a conclusion of lack of enablement. The fact that the examiner feels that the invention is not enabled is not sufficient.

Allowance of claims 1 and 3-21 is respectfully solicited.

Respectfully submitted,

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Date: August 19, 1996

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**Certificate of Mailing under 37 CFR § 1.8(a)**

I hereby certify that this Response to Office Action, along with any paper referred to as being attached or enclosed, is being deposited with the United States Postal Service on the date shown below with sufficient postage as first-class mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

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Tracy Cogborn

Date: August 19, 1996